Before the
FEDERAL COMMUNICATIONS COMMISSION FCC 93-28
Washington, D.C.

In the Matter of	)	
	)	
Amendment of the Commission's Rules to Establish Rules and Policies Pertaining to a Non-Voice, Non-Geostationary Mobile-Satellite Service	)	CC Docket 92-76

NOTICE OF PROPOSED RULEMAKING

Adopted: January 14, 1993 Released: February 10, 1993

Comment Date: April 26, 1993
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By the Commission:

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I. Introduction

1. The Commission has proposed the allocation of certain frequencies for a new, non-voice, non-geostationary orbit mobile-

satellite service (NVNG MSS).[1] This Notice of Proposed Rulemaking (Notice) proposes rules to govern this service.

II. Background

2. At the World Administrative Radio Conference in February, 1992 (WARC-92), the 137-138 MHz, 148-150.05 MHz and 400.15-401 MHz frequency bands were allocated on a worldwide primary shared basis to a non-geostationary mobile-satellite service.[2] The Commission today allocates these frequencies, as well as the 399.9-400.05 MHz frequency band, to a new domestic NVNG mobile-satellite service.[3] The NVNG MSS is a mobile-satellite service[4] reserved for use by non-geostationary satellites in the provision of non-voice communications.

3. A cut-off date was established for the filing of applications to provide mobile-satellite services in these bands, and timely applications were filed by VITA, STARSYS and ORBCOMM. ORBCOMM and STARSYS propose to provide low-cost, commercial radiolocation and two-way data messaging services in these frequency bands, using low-Earth orbiting satellite constellations

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1 Notice of Proposed Rulemaking, 6 FCC Rcd 5932 (October 18, 1991) (Allocation NPRM). A Report and Order allocating these frequencies to the NVNG MSS is being adopted concurrently with this Notice. The Allocation NPRM was adopted in response to a Petitions for Rulemaking and NVNG MSS applications filed with the Commission by Orbital Communications Corporation (ORBCOMM), CCB File No. 22-DSS-P90(20) (February 28, 1990) RM-7334; STARSYS Global Positioning, Inc. (STARSYS), CCB File No. 33-DSS-P90(24) (May 4, 1990) RM-7399; and Volunteers in Technical Assistance (VITA), CCB File No. CSS-91-007(3) (September 20, 1990) RM-7612. A fourth NVNG MSS application, filed by LEOSAT Corporation (LEOSAT), was dismissed for failure to submit an FCC Fee Processing Form 155. LEOSAT Corporation, 7 FCC Rcd 2469 (CCB 1992), recon. pending.

2 The 149.9 MHz-150.05 MHz band is allocated to land mobile-satellite service (Earth-to-space) on a secondary basis until January 1, 1997 (ITU International Radio Regulation (RR) Add. 609B). At that time, the allocation for land-mobile satellite service will become primary. The frequency bands 137.025-137.175 MHz and 137.825-138 MHz are allocated on a secondary basis to non-geostationary mobile-satellite service.

3 Report and Order, supra, at n. 1. The 399.9 MHz-400.05 MHz band was proposed to be allocated to mobile-satellite service in either the space-to-Earth or the Earth-to-space direction, but not both. The allocated NVNG MSS frequency bands are used by the Federal government for terrestrial and/or space services.

4 This may include satellite links between land earth stations at fixed locations. See proposed Section 2.1 in Appendix A, infra.

of up to 24 satellites. Utilizing small, inexpensive transceivers these systems will allow subscribers to send and receive short data messages to and from any other location in the country.[5] These systems may ultimately be used to provide a number of diverse services, including emergency location services in remote areas, vehicle tracking and monitoring, environmental data collection and time-sensitive business and personal data communications. VITA proposes to implement a non-profit, two-satellite system that will be used to provide educational, health, environmental and disaster relief services to developing countries through a store-and-forward operational configuration.

4. On April 16, 1992, the Commission announced its preliminary intent to establish NVNG MSS regulations and licensing policies through a negotiated rulemaking proceeding. Negotiated rulemaking involves the solicitation of input from affected parties, meeting as a Federal Advisory Committee,[6] prior to the Commission's proposal of rules. Through negotiated rulemaking, the Commission hopes to achieve better, less contested, regulations by involving interested parties in a face-to-face, pre-rulemaking process of cooperation and discussion.

5. Prior to the Commission decision to convene an advisory committee, ORBCOMM, STARSYS and VITA jointly submitted proposed rules to govern the NVNG mobile-satellite service.[7] Because of unanswered concerns regarding their ability to co-exist within the allocated spectrum (with each other and/or with existing terrestrial users of the bands), and because the extent of any future competitive entry in this service had not been fully explored, the Commission determined that a brief negotiation period among the interested and affected parties would be in the public interest. Accordingly, on July 27, 1992, the Commission announced its intent to proceed with the formation of a pre-rulemaking advisory committee (Committee) in accordance with the Negotiated Rulemaking Act of 1990.[8] The Committee, which was comprised of representatives of existing users of the frequencies,

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5 Although STARSYS and ORBCOMM are requesting domestic authority, their proposed non-geostationary systems are inherently global in nature and are capable of providing international and/or foreign domestic service. VITA seeks only international authority at this time. We propose that the rules and policies in this Notice apply to all NVNG MSS applicants, regardless of whether they propose to provide domestic or international service.

6 See Federal Advisory Committee Act, 5 U.S.C. App. 2.

7 Jointly Filed Comments of ORBCOMM, STARSYS and VITA, dated May 18, 1992 (Joint Comments).

8 Negotiated Rulemaking Act of 1990, Pub.L. 101-648, November 28, 1990.

potential band users and adjacent band users, held its first meeting on August 10, 1992 [9]

6. Over the course of its 37 day charter period, the Committee and its informal working groups met on an almost daily basis and negotiated a series of comprehensive technical rules and licensing policy recommendations for the NVNG mobile-satellite service. In accordance with the Negotiated Rulemaking Act, the Commission proposes the Committee's recommended technical rules, adopted by unanimous consent of the members, as the basis for this Notice. Commission staff was represented on the Committee, and upon review, we believe that the Committee's recommended regulations and policy suggestions are in the public interest and consistent with our legal and other obligations. Accordingly, the technical regulations recommended by the Committee, along with other proposed service rules, are presented here for notice and comment by interested parties.[10]

III. Discussion

A. System Design Requirements

7. A stated objective in this proceeding has been to establish regulations and policies that will allow multiple entrants into the NVNG MSS market, to the maximum extent possible.[11] The system proponents represented on the Committee[12] agree that sharing of the available spectrum with future systems is possible[13] but they note, and we concur, that only actual

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9 A list of Committee members is attached as Appendix 2 to the Report of the Below 1 GHz LEO Negotiated Rulemaking Committee, dated September 16, 1992, (Committee Report) CC Docket 92-76.

10 Certain service and basic qualification rules, also proposed here, were not considered by the Committee because the Commission is best qualified to make these determinations. As an additional matter, a rule change unrelated to NVNG MSS is proposed. See Appendix A, proposed amended Section 25.151 (c)(5), which provides that public notice will not normally be issued for receipt of applications for assignment or transfer of control of space station authorization where such assignment or transfer of control does not involve a substantial change in ownership or control. We invite comment on this proposal.

11 Notice of Advisory Committee, 57 Fed.Reg. 33163 (July 27, 1992).

12 System proponents represented on the Committee were LEOSAT, ORBCOMM, STARSYS and VITA.

13 Allocated spectrum for this service consists of 3.45 MHz as co-primary and 475 kHz as secondary. Some of these frequencies will be immediately available only on a non-interference basis with certain existing terrestrial services and meteorological and

operating experience in the frequency bands will make possible a realistic determination of the size and type of future system(s) that can be accommodated.[14] Since sharing among the three applicants appears feasible[15], and since some room appears to exist for future entrants, we believe it is unnecessary, or at best premature, to mandate an accessing and modulation technique to be used in this service[16], or to otherwise divide the allocated spectrum in a particular manner among the applicants. Such requirements would unduly inhibit the flexibility of the commercial applicants to design and operate systems in the manner that they deem most appropriate.[17] Absent a compelling showing that a particular sharing proposal represents a truly workable, and most efficient, use of the spectrum, and is needed to accommodate the applicants before us, we believe that such regulation is not in the public interest. We therefore propose to require NVNG MSS applicants to identify the exact frequencies to be used by each system, including specific frequencies for feeder link operations.[18] These frequencies will then be assigned to the operators in the licensing process. This will allow the Commission to determine the availability of spectrum for future users and assure both maximum spectrum efficiency and minimum interference to other users of the bands.

B. Spectrum Efficiency Requirements

8. Although the Committee recommends that the Commission consider in some manner the spectrum efficiency of each proposed NVNG MSS system, it is apparent that the spectrum efficiency of a non-geostationary satellite system is difficult to establish on a normative basis. In the geostationary fixed-satellite services, spectrum efficiency may be reasonably assured by a requirement that satellites adhere to a state-of-the-art equipment, full-frequency reuse standard. Non-geostationary satellite services,

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navigation satellite systems. See Committee Report, supra, at p. 7.

14 Committee Report, supra, at pp. 7-9.

15 Id.

16 This is particularly important in view of concerns raised by ORBCOMM regarding the ability of CDMA systems, such as the one proposed by STARSYS, to operate effectively in the allocated bands given the existing terrestrial environment.

17 The Commission attempts, whenever possible, to permit domestic satellite licensees flexibility in the technical designs of their systems. See, e.g., Assignment of Orbital Locations to Space Stations in the Domestic Fixed-Satellite Service, 3 FCC Rcd 6972 (1988) (1988 Assignment Order) at para. 2; see also Domestic Fixed-Satellite Service, 88 FCC 2d 318 (1981).

18 See paragraphs 11-12, infra.

however, may employ state-of-the-art equipment, but the non-directional mobile earth station antennas they use may prevent NVNG MSS systems from providing efficient services compared with those provided by, for example, the fixed-satellite service which uses directional antennas; nor will the imposition of requirements such as service coverage (i.e. a requirement that a system provide domestic coverage for a specific percentage of time) necessarily ensure the efficient provision of NVNG MSS services. The imposition of minimum domestic coverage requirements would require the Commission to estimate an applicant's commercial plans: certain types of services require a high percentage of coverage time to be effectively provided[19], and some do not[20]. Accordingly, there is no consensus among system proponents as to a specific efficiency criterion or its applicability.[21]

9. Among the options explored by the Committee was the need for satellite station keeping, an orbit management technique that enables system operators to maintain the relative position of each satellite within a constellation.[22] At this time, however, we cannot predict the exact orbit perturbations and the relative change in service quality that is likely to occur if station keeping is not required. It is equally unclear whether continuous coverage is essential to the success of these systems, or whether there is also a need for types of systems that may provide less expensive store-and-forward services. In light of these uncertainties, we believe that adoption of a specific spectrum

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19 E.g. 24-hour, two-way messaging services.

20 E.g. store-and-forward data retrieval services, meteorological data collection.

21 Suggestions explored by the Committee included satellite station keeping requirements, minimum percentage of domestic coverage and the effectiveness of a system design to meet its stated commercial objective.

22 The external forces that perturb a satellite's position are atmospheric drag and solar radiation pressure. These two forces reduce the altitude of the orbit by removing energy from the moving satellite. As the orbit becomes smaller, the orbital period also reduces, causing the relative position of the satellite in the constellation to change. Eventually, the placement of satellites within the constellation will no longer be uniform. This may result in gaps in the constellation without satellite accessibility and the quality of service to the general public could be altered. Hence, there may be a need to maneuver the satellite to correct the orbit when external forces have changed the altitude. This could be done by on-board thrusters to compensate for atmospheric drag and solar radiation pressure, which would require additional spacecraft weight for fuel and the electrical/mechanical complexity of the thruster.

efficiency proposal is inadvisable.[23] The Committee determined that there is adequate spectrum available to accommodate all the applicants, with room left over for future entry. Experience suggests that if a market for services exists, the providers will maximize their available coverage and potential to meet the market demands accordingly.[24]

10. We intend, however, to examine carefully future applications for new systems and applications for replacement systems to ensure that such systems will be operated efficiently in light of technical and other conditions existing at the time of filing. To assist us in making such determinations, and to monitor the evolution and operation of this new service, we propose a rule that imposes a semi-annual reporting requirement on all NVNG MSS licensees. This proposed Section 25.142(c), which is analogous to a similar requirement placed upon fixed-satellite licensees, essentially solicits the following information: the status of satellite construction and launch, a description of any significant space station outages, a description of system utilization and identification of satellites taken out of service.

C. Feeder Link Requirements

11. Three of the system proponents represented on the Committee identified requirements for spectrum within the allocated bands for narrowband "feeder" link or "gateway" link operations.[25] The proponents do not believe, however, that it

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23 However, there may be a need for orbit maintenance requirements in the future to accommodate additional systems. This is particularly true for small systems not fully utilizing the orbit resource. We will address these issues if the need arises.

24 In establishing regulations and licensing procedures for other satellite services, we have determined that competition in new services will provide effects that serve the public interest. See, e.g., Second Report and Order in Gen. Docket 84-689/690 (Radiodetermination Satellite Service Licensing Order), 104 FCC 2d 650, 654 (1986). The courts have endorsed this concept, noting that competitive market forces may achieve the same public policy goals that detailed administrative regulations are designed to achieve. See, e.g., United States v. FCC, 652 F.2d 72 (D.C. Cir. 1980); Computer and Communications Industry Association v. FCC, 693 F.2d 198 (D.C. Cir. 1982). We believe that benefits, such as maximized spectrum efficiency, can be achieved by crafting licensing policies that allow technical flexibility in the provision of NVNG mobile-satellite services.

25 A feeder link is a radio link from an earth station at a given location to a space station, or vice versa, conveying information for a space radiocommunication service other than for the fixed-satellite service. The given location may be at a specified fixed point, or at any fixed point with the specified

will be possible for NVNG MSS systems to share feeder link frequencies with each other or with their mobile operations. A number of these systems will require continuous communications between an operational spacecraft and at least one gateway earth station to provide for the real time relay of messages between users and the gateway. Multiple satellites within a single system will, at times, appear in the beam width of a gateway earth station antenna. This will occur because some satellites will pass relatively close to other satellites, with one satellite on an ascending pass, and another satellite from the same system (but from a different orbital plane) on a descending pass. Nor will it be possible to utilize feeder link earth station antenna discrimination to minimize these occurrences, because in these frequencies the broad main beams of the antennas will be in the range of 20 to 25 degrees.

12. Within a system, it will be possible to coordinate these instances of multiple satellites within the beam width of a gateway antenna through the use of modulation, packet rates and signalling techniques.[26] During the period of near-conjunction of the two satellites, however, the maximum uplink data rate must be shared by both satellites, briefly reducing the system capacity. Such brief periods of reduced capacity can be tolerated within a system because the operators will know in advance when such reductions will occur, through station keeping and tracking. While the proponents believe that sharing of the feeder link spectrum among satellites in the same system will be an efficient use of this spectrum,[27] they indicated that it will be practically impossible to share feeder link spectrum with another system.[28]

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areas. 47 C.F.R. § 2.1.

26 ORBCOMM, for example, will use a frequency division multiple access (FDMA)/time division multiple access (TDMA) uplink format that will permit such intrasystem reuse of the 50 kHz gateway link spectrum.

27 The intrasystem coordination effectively results in multiple reuse of the frequencies.

28 In order for multiple NVNG MSS systems to share the same gateway uplink spectrum, it would be necessary for them to pre-coordinate on an uplink signal structure, including packet rates, modulation techniques and signalling techniques. It would also be necessary to attempt to coordinate actual frequency use operationally on a real time basis, since there would be times when there would be a need to share the uplink data rate among numerous satellites (two or more from each system), thereby effectively resulting in system outages. However, such intersystem operational coordination would be difficult since the satellites from the different systems will not be station-kept with respect to each other. The arguments of perigee and right ascension of ascending nodes will be uncoordinated, and will precess at different rates, making simultaneous visibility a

Accordingly, we do not propose to adopt rules that address feeder links separately. Applicants will determine the location of feeder links within the allocated spectrum on a coordinated basis with other authorized NVNG MSS satellite providers and with other users of the band.

D. Allocation Issues

13. The Committee recommends that the text of certain international Radio Regulations footnotes, adopted at WARC-92, as well as the text of a new footnote limiting the use of these frequencies to NVNG MSS, be added to the domestic Table of Frequency Allocations, 47 C.F.R. § 2.106. We will not propose these changes in the context of this proceeding. Rather, these issues have been addressed in a related Report and Order on frequency allocation matters adopted today in ET Docket 91-280.

E. Space Station Application Requirements

14. The Commission proposes adoption of a new Section 25.142(a) to Part 47 of the Commission's rules and regulations, listing the space station application filing, and certain operating, requirements for NVNG MSS systems. In addition to referencing the information required by Section 25.114, the proposed section calls for information regarding the number of proposed space stations, the altitude(s), argument(s) of perigee, service arc(s), right ascension of ascending node(s), and eccentricity and inclination of the system's space stations. The proposed rule also requires applicants to file information demonstrating that their systems will not cause unacceptable interference into any authorized NVNG MSS system.[29] This demonstration must be based on information publicly available at the Commission at the time the application is filed.

15. This proposed section further requires NVNG MSS applicants to identify power flux densities produced at the Earth's surface by each space station in certain frequency bands. This will allow a determination of whether coordination with terrestrial services is required under footnotes 599A and 647X of Section 2.106 of the Commission's Rules.[30] Applicants must also identify measures they will employ to protect radio astronomy services in the adjacent 150.05-153 MHz and 406.1-410 MHz bands.

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likely but random event with respect to the busy hours of traffic loading.

29 Proposed Section 25.142(b)(3) states that existing permittees and licensees shall seek in good faith to accommodate future entry through coordination.

30 WARC-92 adopted RR 599A, which stipulates that NVNG MSS is required to coordinate with terrestrial services if the power flux density exceeds -125 dB (W/m2) in any 4 kHz.

16. Finally, the Committee suggests that the frequency spectrum can be shared with the terrestrial and other space services using both spread spectrum and frequency separation techniques. Using these techniques in the uplink direction, the spacecraft will receive the desired uplink signals from the mobile terminals and, within the pass band of the satellite receiver, signals emanated from all terrestrial transmitters within view of the satellite. Should a satellite utilize a bent-pipe type of transponder, the unintended terrestrial signals in the uplink would be retransmitted by the satellite in the downlink transmission. These retransmitted terrestrial signals could cause harmful interference to the co-primary services sharing the downlink frequency band. In order to avoid this undesired effect, we propose a new Section 25.142(a)(3) which stipulates that an applicant must demonstrate that no signal received by a satellite from a source outside of the system shall be retransmitted.

F. Financial Qualifications

17. The Commission traditionally requires satellite applicants to demonstrate their financial ability to construct, launch and operate their systems. Examination of an applicant's financial qualifications ensures that the orbit-spectrum resource is not tied up by entities unable to fulfill their plans, discourages the filing of speculative applications that occupy Commission resources, and promotes the prompt availability of service to the public. We have noted, however, that this general principle must be considered in the context of the specific service to be provided. NVNG MSS is a new, innovative and as yet commercially unproven service. Applicants without substantial internal assets may have difficulty obtaining the financing necessary to construct, launch and operate a large system years before that system is to be operational.

18. To ease this difficulty, the applicants suggest that they be allowed to obtain financing for their project in stages. We have attempted to implement two-stage financial showings in other domestic satellite services, but have seen no enhancement of the ability of tentative licensees to secure necessary funding.[31] Moreover, while we can accommodate all the current applicants, as well as some future entrant(s), the capacity for additional entry is not clear. We are hesitant to suggest a standard that may preclude future entry by willing and able applicants while NVNG MSS licensees continue a prolonged attempt to procure financing.

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31 See, e.g. Advanced Business Communications, Inc., 100 FCC 2d 525 (released February 27, 1985); Rainbow Satellite, Inc., Mimeo No. 2584 (released February 14, 1985); United States Satellite Systems Inc., Mimeo No. 2583 (released February 14, 1985) (fixed-satellite service applicants failed to obtain necessary financing, and authorizations nullified, even after extensions of time had been granted.) Indeed, even the second stage of the applicants' proposed two-stage financial does not mandate a concrete demonstration of financial capability. See Joint Comments supra.

Instead, we propose to require an applicant to show that it is financially capable of constructing, launching and operating a portion of its system prior to authorization. It appears that the system operators will be able to perform certain of their proposed services, such as remote environmental data collection, wildlife or vehicle tracking, and routine messaging from remote areas, for example, with as few as two satellites.[32] We thus propose to require NVNG MSS applicants to demonstrate that they have current assets, or irrevocable commitments, sufficient to meet the costs of constructing, launching and operating a minimum two-satellite system for one year.[33] This showing will assure the public of the availability of certain service options while providing the licensee with some additional time to procure full financing. We request comment regarding this proposal, including whether sufficient service may be offered by a two-satellite system to promote the public interest in granting licenses to financially qualified applicants.

G. System License and License Terms

19. Geostationary satellites are licensed individually at specific orbit locations for terms of ten years.[34] In the NVNG MSS, however, an individual satellite is unlikely to be able to perform the proposed functions of the entire system. Indeed, entire satellite constellations will often be necessary to provide the services proposed. Because a minimum number of satellites must be launched and operational before an NVNG MSS system can completely fulfill its purpose, the applicants have suggested that their entire systems be licensed for ten years, commencing on the date that this minimum number of satellites is in operation. In view of the generally large number of identical space stations proposed by the applicants, we believe that a "blanket" system authorization may result in reduced administrative costs and processing delays.[35] Accordingly, we propose that NVNG MSS applicants be authorized to construct, launch and operate a system consisting of a specified number of technically identical space stations. We do not propose to require separate applications for authority to replace space stations during the license term with

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32 A two-satellite constellation could provide approximately 10% communications capability within U.S. borders. This would mean that an NVNG MSS space station would be domestically accessible approximately every one to two hours for a period of between five and ten minutes.

33 See proposed § 25.142(a). This financial qualification showing will essentially be identical to the one currently required by Section 25.140 of the Commission's Rules, 47 C.F.R. §25.140, for domestic fixed-satellite applicants.

34 47 C.F.R. § 25.120(a).

35 See, Routine Licensing of Large Networks of Small Antenna Earth Stations, 51 Fed. Reg. 15067 (April 22, 1986).

technically identical counterparts. Rather, we suggest that a licensee certify to the Commission, at least 30 days prior to launch, that (1) it intends to launch a space station that is technically identical to those authorized by the Commission and (2) launch of this space station will not cause the licensee to exceed the number of operating space stations authorized.[36]

20. The applicants' suggestion to commence license terms following the launch of a minimum number of space stations, however, runs afoul of our statutory mandate. Section 301 of the Communications Act of 1934, as amended, 47 U.S.C. § 301, states that no person shall use or operate any apparatus for the transmission of communications by radio except with a license granted pursuant to the Act. Section 307(c) of the Act limits the length of such a license to ten years. Accordingly, we propose to issue a permit for the construction and launch of the proposed space station system and, when the first of those space stations is launched and ready to transmit, to license the entire NVNG MSS system for a period of ten years commencing upon the date that the authorization is granted. The authority to operate any additional or replacement satellites launched within that ten year time frame would likewise expire at the end of the system authorization.

21. The applicants have suggested that we include a rule embodying a replacement expectancy, pursuant to which an existing operator will receive system replacement authority absent any egregious conduct on its part.[37] As we have stated before, we believe that, given the large capital investment necessary to develop and operate satellite systems, there should be some assurance that operators will be able to continue to serve their customers.[38] However, the Commission may be unable to grant replacement system licenses in the future because of changed international agreements or domestic policy. Further, such a codified expectancy would prematurely tie us to a set of criteria for replacement authorization that may prove inappropriate as the service develops.[39] Accordingly, we do not propose to include a

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36 See proposed § 25.142(a)(5). Requests for authority to construct additional or non-conforming space stations within the license term would be treated as requests for license modification.

37 In the domestic fixed-satellite service, we have refused to codify such a replacement expectancy. See, e.g., 1988 Assignment Order, supra.

38 1988 Assignment Order, supra, at n. 31. See also, Licensing of Space Stations in the Domestic Fixed-Satellite Service, 50 Fed. Reg. 36071 (1985), at para 7.

39 In the 1988 Assignment Order, supra, at n. 31, we similarly noted that various intervening circumstances or conditions may inhibit our grant of replacement authority to existing systems,

replacement expectancy rule at this time. We do intend generally to authorize replacement systems to successful applicants as long as the desired frequencies remain available for use by U.S. systems with comparable technical characteristics.

22. We are also proposing, based upon the Joint Comments, imposition of a filing window for system replacement authorization. See proposed § 25.120(e). This section would require licensees to file system renewal applications no earlier than 90 days, and no later than 30 days, prior to the end of the seventh year of the existing system license. This filing deadline would allow ample time for the Commission to act upon replacement system applications and would allow the licensee sufficient opportunity to implement its next generation system promptly upon expiration of its existing system license. This deadline would further serve to give notice to future applicants that an existing licensee will or will not be seeking replacement system authority and thus allow them to prepare their applications accordingly. We would like comment regarding the length and timing of this filing window, as well as its general desirability.

H. Milestones

23. Although we propose that an applicant need only show, as a preliminary matter, that it is financially capable of constructing, launching and operating a two-satellite system, we will require permittees to proceed with the construction and launch of their entire proposed systems in compliance with specified milestones. These milestones will ensure that NVNG MSS systems are being implemented in a timely manner and will allow the maximum number of NVNG MSS systems to be accommodated and operational to the benefit of users. We propose, as a general matter, that each permittee begin construction of the first two satellites of its system within one year of grant of the construction permit, and begin construction of the remaining satellites within three years of grant. Construction of the first two satellites must be completed within four years of grant, and the entire proposed system must be launched and operational within six years of grant. Since system size and/or complexity may differ substantially among applicants, however, we do not propose to codify these exact milestone limits.[40] Instead, milestones will be included in the authorization of each individual NVNG MSS

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including the need to implement changed satellite policy or the proposed system's inability to coordinate successfully with other systems. The satellite system may further need to be improved to accommodate changing technology and requirements. Additional, unforeseen factors may also prove to be of great importance as the service evolves.

40 For example, a licensee of a two-satellite system should be more quickly able to construct and launch its system than a licensee proposing twenty space stations.

system.[41] Permittees must notify the Commission as these milestones are met. Failure to fulfill these conditions will render the system's authorization null and void and another system, if proposed, may become eligible in its place. We request comment on the proposed general milestone deadlines set forth above.

I. Transceiver Application Requirements

24. Rather than requiring individual NVNG MSS transceivers to be licensed, the Committee proposes that a flexible blanket licensing approach be adopted. Under such an approach, either the space station system licensee, or a service vendor, would hold the authorization and responsibility for a specified number of technically identical units. In light of the large costs and burdens involved in issuing individual licenses for potentially thousands of units, we believe that blanket licensing is an efficient and effective method of authorization.[42] The license term for a blanket authorization will be ten years from the date of grant, and requests for authority to include additional transceivers in the authorization will be treated as minor modifications thereto. We request comment on this blanket licensing proposal.

25. In implementing a blanket licensing procedure, we recognize that our goal of minimum regulatory constraint on the industry must be balanced with our obligation to assure efficient, interference-free communication service.[43] To this end, we propose to codify in proposed Section 25.135 a requirement that an end user must obtain the authorization of the space station operator, either directly or through an authorized vendor, before the user may transmit to that system.[44] Once an end user has obtained authority to transmit to and access a particular system, we propose that the transceiver operations of that authorized user be deemed to fall within the blanket earth station license held by that space station operator or vendor. See proposed Section 25.135(d). We believe that this approach will facilitate

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41 Similar milestones are used in the domestic fixed-satellite and direct broadcast satellite industries. See, e.g., Norris Satellite Communications, Inc., 7 FCC Rcd 4289 (1992).

42 See, e.g., Policies and Procedures for the Licensing of Space and Earth Stations in the Radiodetermination Satellite Service, 104 FCC 2d 650 (May 8, 1986), para. 29.

43 See 47 U.S.C. §§ 151, 302.

44 We anticipate that any transceiver designed to operate with a U.S.-licensed system from a country licensing the use of that same system may be brought into the U.S. by a user to operate with the U.S.-licensed system.

international roaming by users[45] while still protecting domestic interests in an interference-free electromagnetic environment. We request comment on the technical ramifications and legal sufficiency of allowing roaming users periodically to fall within the umbrella of the blanket domestic earth station license.

26. With respect to awarding earth station licenses, the Committee suggests that an NVNG MSS applicant for a mobile unit or gateway earth station authorization demonstrate in its application that transceiver operations will not cause unacceptable interference into other authorized users of the spectrum. This demonstration will be based on existing information that is publicly available at the Commission at the time of filing. We agree that the NVNG MSS applicant should be required to demonstrate that operation of its transceivers or fixed stations will not interfere with other authorized users. We also propose to vest the responsibility for resolving any interference incidents with the earth station licensee.

27. As a final matter, the frequency band from 108 to 137 MHz, used for civil and military aeronautical safety communications and navigation, is adjacent to the 137 to 138 MHz band to be used by the NVNG mobile-satellite service as a downlink band. Depending upon the specific design, the receiver portion of the portable transceiver may emit unintentional radiation in the 108 to 137 MHz band. Because of this interference potential, the Committee suggests, and we propose, a labeling rule to ensure that the hand-held transceivers, or devices that contain transceivers, are not to be operated on board civil aircraft.[46] See proposed Section 25.135(b).

J. Domestic Coordination

28. The Committee considered whether a rule requiring coordination between new applicants for NVNG MSS systems and permittees, licensees, and earlier applicants for NVNG MSS systems should be adopted as a means to maximize future entry. It concluded that coordination should be encouraged, but, at the same time, it was concerned that requiring coordination too early in the process would be unduly burdensome and wasteful. Therefore, the Committee recommends that we require coordination only after we determine that the process will be useful.

29. We agree that it would be impractical and unduly burdensome to require existing authorized users to coordinate their systems with each new NVNG MSS applicant. However, we also

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45 We would hope that as other countries license non-geostationary satellite systems, they would permit roaming by users having technically compatible transceivers designed to operate with systems licensed in the U.S.

46 Section 15.101(a) of the Commission's rules also applies to the receivers, associated with any of the NVNG MSS transceivers.

concur that the coordination process should work to accommodate new entrants to the extent possible. As in the domestic fixed-satellite service, we propose to require all applicants to provide technical information sufficient to demonstrate compatibility with existing authorized users.[47] Potential coordination conflicts can thus be identified in the application process. If, upon review, the Commission believes that it is feasible for the parties to coordinate successfully and a license is granted, we expect the parties to coordinate their systems in good faith.[48]

30. We generally do not require the results of domestic coordinations to be filed with the Commission, preferring instead to leave coordination matters to the affected entities.[49] We propose to extend this policy the NVNG MSS. Nonetheless, we would like comment on the general desirability of imposing a reporting requirement in this instance.

31. The Committee also discussed coordination methodologies between NVNG MSS providers and Federal government agencies sharing the same frequency bands, and concluded that the existing National Telecommunications and Information Administration/Interdepartment Radio Advisory Committee structure, in which the Commission participates with a liaison representative, is best suited for this purpose. The coordination of space and earth stations with the Federal government must be completed before construction authorization. See proposed Section 25.142(b)(2).

K. International Obligations

32. Non-geostationary mobile satellite services are inherently international systems. VITA proposes to offer international services immediately upon being authorized and we presume that the other NVNG MSS applicants will offer

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47 See para. 14, supra.

48 See proposed Section 25.142(b)(3), which reserves the Commission's right to require coordination at an earlier time, if circumstances dictate. We will, of course, be hesitant to require pre-licensing coordination if such an action would appear to prejudge an application licensing decision.

49 See, e.g., Assignment of Orbital Locations to Space Stations in the Domestic Fixed-Satellite Service, 5 FCC Rcd 179 (1990) (Commission will not become involved unless the parties are unable to reach an agreement. If a coordination agreement between private sector parties cannot be reached after exhaustive good faith effort, the parties may then request Commission intervention.) See also Orion Satellite Corp., 5 FCC Rcd 4937, 4938 (1990) (Commission declines to delay authorization of new satellite pending resolution of interference concerns raised by another U.S.-licensed system or to intervene; leaves it to the parties "to resolve potential interference problems through informal coordination prior to seeking Commission involvement").

international services later. Due to their international character, these systems will be subject to a number of international obligations. As in all other satellite services, each applicant, licensee and permittee would be required by Section 25.111(b) of the Commission's Rules to provide the Commission with all information required for Advance Publication, coordination and notification of frequency assignments pursuant to the international Radio Regulations and consultations required by Article XIV of the INTELSAT Agreement and Article 8 of the INMARSAT Convention. Additionally, Resolution 46 (WARC-92) requires non-geostationary satellite systems to coordinate their systems and notify their frequency assignments. The Commission, as the registering administration for the U.S., will work with the NVNG MSS systems in fulfilling their obligations. The Commission will also continue to participate in ITU fora on sharing techniques and other technical issues relating to these systems. The Commission will require licensed NVNG MSS systems to meet both their international obligations and the national requirements imposed on them by other licensing administrations.

L. Regulatory Treatment

33. Finally, we propose to permit domestic NVNG MSS applicants to elect to provide services on either a common carrier or non-common carrier basis. To the extent that licensees choose to provide services on a common carriage basis, we propose that they be classified as non-dominant carriers, and therefore subject to streamlined tariff filing and facilities authorization procedures under Parts 61 and 63 of the Commission's Rules.[50] Should the licensees choose to provide services on a common carrier basis, the foreign-ownership limitation in Section 310(b) of the Communications Act would apply.

34. The NVNG MSS applicants propose to provide position determination and two-way data messaging services. With regard to the position determination services, we believe that these activities are not inherently common carrier services because the licensee essentially exercises control over the content of communications channels in the rendition of such services.[51] Nor do we believe that the provision of data messaging services requires us to impose common carrier regulations upon the NVNG mobile-satellite service as a whole. In National Association of Regulatory Utility Commissioners v. FCC, 525 F.2d 630, 642

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50 STARSYS and VITA propose to provide service on a non-common carriage basis. ORBCOMM proposes to operate as a common carrier.

51 See, e.g., Radiodetermination Satellite Service, 49 Fed. Reg. 36512 (September 18, 1984), citing Industrial Radio Service, 5 FCC 2d 197, 202 (radiolocation is not a common carrier service within the meaning of Title II of the Communications Act because "the specific intelligence transmitted is and must be the sole responsibility and prerogative of the licensee and not the subscriber.").

(D.C.Cir.) cert. denied, 425 U.S. 999 (1976) (NARUC I), the court identified two criteria as determinative of whether a service may be provided on a non-common carrier basis: (1) whether there is or should be any legal compulsion to serve the public indifferently, and (2) if not, whether there are reasons implicit in the nature of the service to expect an indifferent holding out to the eligible user public.[52]

35. Here, applying the tenets of NARUC I, we do not anticipate that there will be a public interest reason to impose a legal compulsion upon all NVNG MSS operators to serve the public indifferently. We note in this regard that these services may be valuable, among other things, for the protection of life and safety. We ask parties to comment on whether it would be necessary to impose any common carrier obligations in order to assure the availability of these kinds of service to the public. We note that multiple entrants can be accommodated and, indeed, one of the two commercial NVNG MSS applicants has indicated its intent to operate as a common carrier. Further, competitive radiolocation and message services already exist,[53] a competitive geostationary mobile-satellite service system has been authorized[54] and is being built, and a rulemaking is underway to license additional mobile-satellite systems in other frequency bands.[55] Accordingly, it appears that sufficient competitive capacity is or will be available to assure the public of ample access to these types of services. We request comment, however, on this assessment of comparable capacity.

36. It further does not appear, applying the second phase of the NARUC I test, that the service proposed by the applicants need necessarily be offered as an indifferent holding out to the public. As proposed in the applications of both STARSYS and ORBCOMM, NVNG mobile-satellite services may be tailored to provide

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52 Regarding "legal compulsion," the NARUC I court found that Specialized Mobile Radio Systems (SMRS) were not compelled by the Commission to serve any particular applicant and had unlimited discretion in determining whom, and on what terms, to serve. The court also determined that there was "little reason to expect any sort of holding out to the public" if the service involved the establishment of medium to long term contractual relations with a high level of stability among those employing the service and if the operator expected to provide highly individualized services to clients.

53 E.g., Qualcomm's satellite-based radiolocation and two-way data messaging service. Qualcomm, Inc., 4 FCC Rcd 1543 (1989).

54 Memorandum Opinion, Order and Authorization, 4 FCC Rcd 6041 (1989) (AMSC Authorization Order); Final Decision on Remand, 7 FCC Rcd 266 (1992).

55 See generally CC Docket 92-166. Five of the applicants in this proceeding have proposed non-geostationary systems.

a wide variety of specialized low-cost position determination and data messaging services. Location devices may be benignly embedded in new automobiles as a theft deterrent; remote area adventurers may use a unit on a one-time basis for emergency backup; or a single shipping concern may use hundreds of devices to track, and correspond regarding, valuable cargo. As these examples indicate, the proposed NVNG mobile-satellite service may be styled to accommodate the highly individualized methods of operation and demands of potential users. Again, we request comment on this assessment. As noted above, if carriers choose to offer service indiscriminately to the public and thus operate as common carriers, we propose to subject them to streamlined regulatory treatment.

IV. Conclusion

37. In this Notice, we propose regulations that will allow the licensing and operation of competitive non-voice, non-geostationary mobile-satellite service systems operating in the frequency bands below 1 GHz.[56] Such rules are in the public interest because they will promote the earliest availability of a new satellite service. We request comment on the issues and proposals addressed in this Notice and encourage all interested parties to participate in the resolution of this matter.

V. Procedural Matters

A. Ex Parte Rules-Non-Restricted Proceeding

38. This is a non-restricted notice and comment rulemaking proceeding. Ex parte presentations are permitted, except during the Sunshine Agenda period, provided that they are disclosed in accordance with Commission rules. See generally 47 C.F.R. Sections 1.1202, 1.1203 and 1.1206(a).

B. Regulatory Flexibility

39. As required by Section 603 of the Regulatory Flexibility Act, the Commission has prepared an Initial Regulatory Flexibility Analysis (IRFA) of the expected impact on small entities of the proposals suggested in this document. The IRFA is set forth in Appendix B. Written public comments are requested on the IRFA. These comments must be filed in accordance with the same filing deadlines as comments on the rest of the Notice, but they must have a separate and distinct heading designating them as responses to the Initial Regulatory Flexibility Analysis. The Secretary

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56 Upon adoption of final rules, we propose to allow applicants 90 days during which to amend their applications to conform to the new regulations and to pay appropriate construction and launch fees. See Telecommunications Authorization Act of 1992, H.R. 6180, January 3, 1992, at Title II, Sec. 209.

shall send a copy of this Notice of Proposed Rulemaking, including the Initial Regulatory Flexibility Analysis, to the Chief Counsel for Advocacy of the Small Business Administration in accordance with paragraph 603(a) of the Regulatory Flexibility Act. Pub. L. No. 96-354, 94 Stat. 1164, 5 U.S.C. Section 601 et seq. (1981).

C. Comment Dates

40. Pursuant to applicable procedures set forth in Sections 1.415 and 1.419 of the Commission's Rules, 47 C.F.R. §§ 1.415 and 1.419, interested parties may file comments on or before April 26, 1993, and reply comments on or before May 26, 1993. To file formally in this proceeding, you must file an original and four copies of all comments, reply comments and supporting comments. If you want each Commissioner to receive a personal copy of your comments, you must file an original plus nine copies. You should send your comments and reply comments to the Office of the Secretary, Federal Communications Commission, Washington, D.C. 20554. Comments and reply comments will be available for public inspection during regular business hours in the FCC Reference Center (Room 239), 1919 M Street, N.W., Washington, D.C. 20554.

VI. Ordering Clause

41. Accordingly, pursuant to authority contained in Sections 4(i) and 303(r) of the Communications Act of 1934, as amended, 47 U.S.C. §§154(i) and 303(r), we hereby give notice of our intent to adopt the regulations and licensing policies set forth in Appendix A.

42. IT IS ORDERED that the Secretary shall send a copy of this Notice of Proposed Rulemaking to the Chief Counsel for Advocacy of the Small Business Administration in accordance with 5 U.S.C. § 601 et seq. (1981).

43. For further information regarding this Notice of Proposed Rulemaking, contact Kristi L. Kendall, Common Carrier Bureau, Domestic Facilities Division, (202) 634-7058.

FEDERAL COMMUNICATIONS COMMISSION

Donna R. Searcy
Secretary

APPENDIX A

Title 47 of the Code of Federal Regulations, Parts 2 and 25, are amended as follows:

1. The authority citation for Part 2 continues to read as follows:

AUTHORITY: Sec. 4, 302, 303 and 307 of the Communications Act of 1934, as amended, 47 U.S.C. Sections 154, 154(i), 302, 303, 303(r), and 307, unless otherwise noted.

2. A new paragraph is added, in alphabetical order, to Sections 2.1 and 25.201 to read as follows:

Non-Voice, Non-Geostationary Mobile-Satellite Service. A mobile-satellite service reserved for use by non-geostationary satellites in the provision of non-voice communications which may include satellite links between land earth stations at fixed locations.

3. The Table of Contents for Part 25 is revised to read as follows:

PART 25 - SATELLITE COMMUNICATIONS
Subpart A - General

Sec.

Subpart B - Applications and Licenses

EARTH STATIONS

SPACE STATIONS

PROCESSING OF APPLICATIONS

FORFEITURE, TERMINATION, AND REINSTATEMENT OF STATION AUTHORIZATION

Subpart C - Technical Standards

Subpart D -- [Reserved]

Subpart E - Developmental Operations

25.308 Automatic Transmitter Identification System (ATIS)

Subparts F - G -- [Reserved]

Subpart H - Authorization To Own Stock in the Communications Satellite Corporation

25.501 Scope of this subpart.

25.502 Definitions.

25.503 - 25.504 [Reserved]

25.505 Persons requiring authorization.

25.206 - 25.514 [Reserved]

25.515 Method of securing authorization.

25.516 - 25.519 [Reserved]

25.520 Contents of application.

25.521 Who may sign applications.

25.522 Full disclosures.

25.523 Form of application, number of copies, fees, etc.

25.524 [Reserved]

25.525 Action upon applications.

25.526 Amendments.

25.527 Defective applications.

25.528 - 25.529 [Reserved]

25.530 Scope of authorization.

25.531 Revocation of authorization.

4. The authority citation for Part 25 continues to read as follows:

AUTHORITY: Sections 101 - 404, 76 Stat. 419 - 427; 47 U.S.C. 701 - 744, Sec. 4, 48 Stat. 1066, as amended; 47 U.S.C. 154. Interprets or applies sec. 303, 48 Stat. 1082, as amended; 47 U.S.C. 303.

5. Section 25.114 is amended by revising paragraph (c)(18), and adding a new paragraph (c)(27), to read as follows:

§ 25.114. Applications for space station authorizations.

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(c) * * * *

(18) Detailed information demonstrating the financial qualifications of the applicant to construct and launch the proposed satellites. Applications for domestic and NVNG MSS satellite systems shall provide the financial information required by § 25.140(b)-(e) or § 25.142(b)(4). Applications for international satellite systems shall provide the information required by Establishing of Satellite Systems Providing International Communications, 50 FR 42266 (October 18, 1985), 101 FCC 2d 1046 (1985).

* * * *

(27) Applications to license multiple space station systems in the non-voice, non-geostationary mobile-satellite service under blanket operating authority shall also provide all information specified in § 25.142.

6. Section 25.115 is amended by adding new a paragraph (d) to read as follows:

§ 25.115 Applications for earth station authorizations.

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(d) User transceivers in the non-voice, non-geostationary mobile-satellite service need not be individually licensed. Service vendors may file blanket applications for transceiver units using FCC Form 493 and specifying the number of units to be covered by the blanket license. FCC Form 430 should be submitted if not already on file in conjunction with other facilities licensed under this subpart. Each application for a blanket license under this section shall include the information described in § 25.135.

7. Section 25.120 is amended by revising paragraphs (d) and (e) to read as follows:

§ 25.120 License term and renewals.

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